Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1-50. (Cancelled).

51. (Previously Presented) A method of producing a composite solid polymer electrolyte membrane (SPEM) comprising a porous polymer substrate interpenetrated with an ion-conducting material, said method comprising the steps of preparing a mixture of the polymer substrate and the ion-conducting material and casting or extruding the composite SPEM from the mixture, and wherein

(i) the porous polymer substrate comprises a homopolymer or copolymer of a liquid crystalline polymer or a solvent soluble thermoset or thermoplastic aromatic polymer; and

(ii) the ion-conducting material comprises a homopolymer or copolymer of at least one of a sulfonated, phosphonated or carboxylated ion-conducting aromatic polymer or a perfluorinated ionomer.

52. (Previously Presented) The method of claim 51, wherein the SPEM is substantially thermally stable to temperatures of at least about 100°C.

53. (Previously Presented) The method of claim 51, wherein the SPEM is substantially thermally stable from at least about 100°C to at least about 175°C.

54. (Previously Presented) The method of claim 51, wherein the liquid crystalline polymer substrate comprises a lyotropic liquid crystalline polymer.

55. (Previously Presented) The method of claim 54, wherein the lyotropic liquid crystalline polymer substrate comprises at least one of a polybenzazole (PBZ) and polyaramid (PAR) polymer.

56. (Previously Presented) The method of claim 55, wherein the polybenzazole polymer substrate comprises a homopolymer or copolymer of at least one of a polybenzoxazole (PBO), polybenzothiazole (PBT) and polybenzimidazole (PBI) polymer and the polyaramid polymer comprises a homopolymer or copolymer of a polypara-phenylene terephthalamide (PPTA) polymer.

57. (Previously Presented) The method of claim 51, wherein the thermoset or thermoplastic aromatic polymer substrate comprises at least one of a polysulfone (PSU), polyimide (PI), polyphenylene oxide (PPO), polyphenylene sulfoxide (PPSO), polyphenylene sulfide (PPS), polyphenylene sulfide sulfone (PPS/SO_2), polyparaphenylene (PPP), polyphenylquinoxaline (PPQ), polyarylketone (PK) and polyetherketone (PEK) polymer.

58. (Previously Presented) The method of claim 57, wherein the polysulfone polymer substrate comprises at least one of a polyethersulfone (PES), polyetherethersulfone (PEES), polyarylethersulfone (PAS), polyphenylsulfone (PPSU) and polyphenylenesulfone ($PPSO_2$) polymer; the polyimide (PI) polymer comprises a polyetherimide (PEI) polymer; the polyetherketone (PEK) polymer comprises at least one of a polyetherketone (PEK), polyetheretherketone (PEEK), polyetherketone-ketone (PEKK), polyetheretherketone-ketone (PEEKK) and polyetherketoneetherketone-ketone (PEKEKK) polymer; and the polyphenylene oxide (PPO) polymer comprises a 2,6-diphenyl PPO or 2,6 dimethyl PPO polymer.

59. (Previously Presented) The method of claim 51, wherein the ion-conducting aromatic polymer comprises a wholly aromatic ion-conducting polymer.

60. (Previously Presented) The method of claim 51, wherein the ion-conducting aromatic polymer comprises a sulfonated, phosphonated or carboxylated polyimide polymer.

61. (Previously Presented) The method of claim 60, wherein the polyimide polymer is fluorinated.

62. (Previously Presented) The method of claim 59, wherein the wholly-aromatic ion-conducting polymer comprises a sulfonated derivative of at least one of a polysulfone (PSU), polyphenylene oxide (PPO), polyphenylene sulfoxide (PPSO), polyphenylene sulfide (PPS), polyphenylene sulfide sulfone (PPS/SO_2), polyparaphenylene (PPP), polyphenylquinoxaline (PPQ), polyarylketone (PK), polyetherketone (PEK), polybenzazole (PBZ) and polyaramid (PAR) polymer.

63. (Previously Presented) The method of claim 62, wherein:

(i) the polysulfone polymer comprises at least one of a polyethersulfone (PES), polyetherethersulfone (PEES), polyarylsulfone, polyarylethersulfone (PAS), polyphenylsulfone (PPSU) and polyphenylenesulfone ($PPSO_2$) polymer,

(ii) the polybenzazole (PBZ) polymer comprises a polybenzoxaxole (PBO) polymer;

(iii) the polyetherketone (PEK) polymer comprises at least one of a polyetherketone (PEK), polyetheretherketone (PEEK), polyetherketone-ketone (PEKK), polyetheretherketone-ketone (PEEKK) and polyetherketoneetherketone-ketone (PEKEKK) polymer; and

(iv) the polyphenylene oxide (PPO) polymer comprises at least one of a 2,6-diphenyl PPO, 2,6-dimethyl PPO and 1,4-poly phenylene oxide polymer.

64. (Previously Presented) The method of claim 51, wherein the perfluorinated ionomer comprises a homopolymer or copolymer of a perfluorovinyl ether sulfonic acid.

65. (Previously Presented) The method of claim 64, wherein the perfluorovinyl ether sulfonic acid is carboxylic- (COOH), phosphonic- ($PO(OH)_2$) or sulfonic- (SO_3H) substituted.

66. (Previously Presented) The method of claim 51, wherein the ion-conducting material comprises at least one of a polystyrene sulfonic acid (PSSA), poly(trifluorostyrene) sulfonic acid, polyvinyl phosphonic acid (PVPA), polyacrylic acid and polyvinyl sulfonic acid (PVSA) polymer.

67. (Previously Presented) The method of claim 51, wherein the porous polymer substrate comprises a homopolymer or copolymer of at least one of a substituted or unsubstituted polybenzazole polymer, and wherein the ion-conducting material comprises a sulfonated derivative of a homopolymer or copolymer of at least one of a polysulfone (PSU), polyphenylene sulfoxide (PPSO) and polyphenylene sulfide sulfone (PPS/SO_2) polymer.

68. (Previously Presented) The method of claim 67, wherein the polysulfone polymer comprises at least one of a polyethersulfone (PES) and polyphenylsulfone (PPSU) polymer.

69. (Previously Presented) The method of claim 51, further comprising cross-linking the ion-conducting material to form sulfone crosslinkages.

70. (Previously Presented) The method of claim 51, further comprising chlorinating or brominating the ion-conducting material.

71. (Previously Presented) The method of claim 51, further comprising adding antioxidants to the ion-conducting material.

72. (Previously Presented) The method of claim 51, further comprising purifying the ion-conducting material.

73. (Previously Presented) The method of claim 72, wherein purifying the ion-conducting material comprises dissolving the ion-conducting material in a suitable solvent and precipitating the ion-conducting material into a suitable non-solvent.

74. (Previously Presented) The method of claim 72, wherein purifying the ion-conducting material comprises substantially removing overly sulfonated or degraded fractions of the ion-conducting material.

75. (Previously Presented) The method of claim 51, wherein the mixture of the polymer substrate and ion-conducting material is prepared in a common solvent.

76. (Previously Presented) The method of claim 75, wherein the common solvent is selected from the group consisting of tetrahydrofuran (THF), dimethylacetamide (DMAc), dimethylformamide (DMF), dimethylsulfoxide (DMSO), N-Methyl-2-pyrrolidinone (NMP), sulfuric acid, phosphoric acid, chlorosulfonic acid, polyphosphoric acid (PPA) and methanesulfonic acid (MSA).

77-117. (Cancelled).

118. (Previously Amended) A method of producing a composite solid polymer electrolyte membrane (SPEM) comprising a porous polymer substrate interpenetrated with an ion-conducting material, said method comprising the steps of preparing a mixture of the polymer substrate and the ion-conducting material in a common solvent and casting or extruding the composite SPEM from the mixture, and wherein the SPEM is substantially thermally stable to temperatures of at least about 100°C.

119. (Previously Presented) A method of producing a composite solid polymer electrolyte membrane (SPEM) comprising a porous polymer substrate interpenetrated with an ion-conducting material, said method comprising the steps of preparing a mixture of the polymer substrate and the ion-conducting material and extruding or casting a composite film directly from the mixture, and wherein the SPEM is substantially thermally stable to temperatures of at least about 100°C.

120. (Cancelled).

121. (Previously Presented) A method as in any of 118-120, wherein the SPEM is stable from at least about 100°C to about 175°C.

122. (Previously Presented) A method as in any of claims 118-120, wherein the SPEM is stable from at least about 100°C to about 150°C.
wherein

123. (Previously Presented) A method as in any of claims 118-120, wherein the porous polymer substrate comprises a homopolymer or copolymer of a liquid crystalline polymer or a solvent soluble thermoset or thermoplastic aromatic polymer.

124. (New) A method of producing a composite solid polymer electrolyte membrane (SPEM) comprising a porous polymer substrate interpenetrated with an ion-conducting material, said method comprising the steps of preparing a mixture of the polymer substrate and the ion-conducting material and processing the mixture to form the composite SPEM, and wherein

(i) the porous polymer substrate comprises a homopolymer or copolymer of a liquid crystalline polymer or a solvent soluble thermoset or thermoplastic aromatic polymer; and

(ii) the ion-conducting material comprises a homopolymer or copolymer of at least one of a sulfonated, phosphonated or carboxylated ion-conducting aromatic polymer or a perfluorinated ionomer.